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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,325	04/28/2006	Hiroaki Nakamura	289426US0PCT	4955
22850 7590 07/11/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER SUCH, MATTHEW W	
			ART UNIT 2891	PAPER NUMBER
			NOTIFICATION DATE 07/11/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/577,325	Applicant(s) NAKAMURA ET AL.	
	Examiner Matthew W. Such	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2 April 2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 2 April 2008 is being considered by the examiner.

Claim Objections

2. Claim 1 is objected to because of the following informalities: the phrase "the source and the drain" in Line 5 of the claim should read "the source electrode and the drain electrode" in order to maintain consistent antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 5 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Bao ('040).

a. Regarding claims 1 and 9, Bao teaches an organic thin film transistor comprising a gate electrode (Element 10; Col. 6, Line 17), a source electrode (Element 13; Col. 6, Line 23), and a drain electrode (Element 15; Col. 6, Line 23). Devices having a distance between the source and drain electrode included 1.5 μm , 4 μm , 12 μm , and 25 μm (Col. 6, Lines 23-24). An insulating layer (Element 12; Col. 6, Line 18) and an organic semiconductor layer (Element 14; Col. 6, Line 45) is formed on a substrate (Element 10; Col. 6, Line 17). The organic semiconductor layer comprises BBL, which is a compound having a five-membered ring with a nitrogen atom shared with a fused six-membered ring (see Formulas C, II, III, IV, V, VI).

The language, term, or phrase "formed by condensation between five member rings each having a nitrogen atom at their condensation sites or between a five-member ring and a six-member ring each having a nitrogen atom at their condensation sites", is directed towards the process of making a heterocyclic compound containing nitrogen. It is well settled that "product by process" limitations in claims drawn to structure are directed to the product, per se, no matter how actually made. *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious

Art Unit: 2891

product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or otherwise. As such, the language "formed by condensation" only requires a structure having five member rings each having a nitrogen atom at a common point shared between the two rings, or a structure having a nitrogen atom at a common point shared between a five member ring and a six member ring which does not distinguish the invention from Bao, who teaches the structure as claimed with the BBL organic semiconductor compound.

The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Pearson*, 181 USPQ 641 (CCPA); *In re Minks*, 169 USPQ 120 (Bd Appeals); *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). See MPEP §2114. The recitation of "which controls an electric current flowing between the source and the drain by applying an electric voltage across the gate electrode" does not distinguish the present invention over the prior art of Bao who teaches the structure as claimed.

b. Regarding claim 5, Bao teaches that the heterocyclic compound containing a nitrogen atom is a compound of the general formula (IV) of claim 5 wherein Z₄ is a six-membered ring and R₄₁ and R₄₂ are a substituent of a cyclic ring (see Formulas C, II, III, IV, V, VI of Bao, for example).

- c. Regarding claims 10-12, Bao teaches that the source electrode and drain electrode are formed "on" a substrate (see Fig. 1, for example). The examiner notes that the use of the term "on" does not limit the claimed structure to have elements in contact with one another without intervening layers. Bao also teaches that the source electrode and drain electrode can be formed "on" and in contact with the insulating layer ("bottom contact geometry"; Col. 6, Lines 21-22; Fig. 1) as well as a configuration with the with the source electrode and drain electrode formed "on" and in contact with the organic semiconductor layer ("top contact geometry"; Col. 6, Lines 25-30).
- d. Regarding claim 13, Bao teaches that the field-effect mobility of electrons of the heterocyclic compound is $10^{-3} \text{ cm}^2/\text{Vs}$ or more (Abstract; Col. 8, Line 49, for example).
5. Claims 1, 5 and 9-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Ong ('664).
- e. Regarding claims 1 and 9, Ong teaches an organic thin film transistor comprising a gate electrode (Elements 18, 38, 56, 78; Col. 13, Lines 26, 32, 36-37, 42), a source electrode (Elements 20, 40, 60, 80; Col. 13, Lines 28, 33, 40, 43), and a drain electrode (Elements 22, 42, 62, 82; Col. 13, Lines 28, 33, 40, 43). Devices having a distance between the source and drain electrode is, for example, $5 \mu\text{m}$ (Col. 14, Lines 53-56). An

insulating layer (Elements 14, 34, 54, 74; Col. 13, Lines 27, 33-34, 38, 44) and an organic semiconductor layer (Elements 18, 38, 56, 78; Col. 13, Lines 26, 32, 36-37, 42) is formed on a substrate (Elements 16, 36, 56, 76; Col. 13, Lines 25-26, 32, 36-37, 42). The organic semiconductor layer comprises BBL, which is a compound having a five-membered ring with a nitrogen atom shared with a fused six-membered ring (see Formulas 1-26, for example).

The language, term, or phrase "formed by condensation between five member rings each having a nitrogen atom at their condensation sites or between a five-member ring and a six-member ring each having a nitrogen atom at their condensation sites", is directed towards the process of making a heterocyclic compound containing nitrogen. It is well settled that "product by process" limitations in claims drawn to structure are directed to the product, per se, no matter how actually made. *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or otherwise. As such, the language "formed by condensation" only requires a structure having five member rings each having a nitrogen atom at a common point shared between the two rings, or a structure having a nitrogen

Art Unit: 2891

atom at a common point shared between a five member ring and a six member ring which does not distinguish the invention from Ong, who teaches the structure as claimed with the BBL organic semiconductor compound.

The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Pearson*, 181 USPQ 641 (CCPA); *In re Minks*, 169 USPQ 120 (Bd Appeals); *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). See MPEP §2114. The recitation of "which controls an electric current flowing between the source and the drain by applying an electric voltage across the gate electrode" does not distinguish the present invention over the prior art of Ong who teaches the structure as claimed.

f. Regarding claim 5, Ong teaches that the heterocyclic compound containing a nitrogen atom is a compound of the general formula (IV) of claim 5 wherein Z4 is a six-membered ring and R₄₁ and R₄₂ are a substituent of a cyclic ring (see Formulas 1-26 of Ong, for example).

g. Regarding claims 10-12, Ong teaches that the source electrode and drain electrode are formed "on" a substrate (see Figs. 1-4, for example). The examiner notes that the use of the term "on" does not limit the claimed structure to have elements in contact with one

another without intervening layers. Ong teaches that the source electrode and drain electrode can be "on" and in contact with the substrate (Fig. 4). Ong also teaches that the source electrode and drain electrode can be formed "on" and in contact with the insulating layer (Fig. 1) as well as a configuration with the with the source electrode and drain electrode formed "on" and in contact with the organic semiconductor layer (either of Figs. 2 and 3, for example).

h. Regarding claim 13, Ong teaches that the field-effect mobility of electrons of the heterocyclic compound is $10^{-3} \text{ cm}^2/\text{Vs}$ or more (Col. 14, Line 65, for example).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 3-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson ('572) in view of Klauk (Solid-State Electronics, Vol. 47) in view of Ueda ('057).

i. Regarding claims 1 and 3-9, Jackson teaches an organic thin film transistor (Col. 3, Lines 27-51) comprising a gate electrode (Element 14; Col. 4, Lines 24-26, at least), a source electrode (Element 18; Col. 4, Line 38, at least), and a drain electrode (Element

24; Col. 4, Lines 60-61, at least). An insulating layer (Element 16; Col. 4, Line 34, at least) and an organic semiconductor layer (Elements 20, 22, 32; Col. 4, Lines 44-56, at least) are formed on a substrate (Element 12; Col. 4, Line 23, at least).

Jackson is silent regarding the length of the channel, or (in other words) the distance between the source electrode and the drain electrode. However, Klauk teaches an organic thin film transistor (Fig. 1, for example) with conventional channel lengths of 5-100 μm , for example, and the effects on device characteristics (see Page 299). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the channel length of Jackson to be 100 μm , for example, in order to have a higher carrier mobility and low threshold voltage (Klauk Fig. 3, for example). It has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Jackson teaches some conventional compounds useful as the light emitting material of the organic semiconductor layer, such as TPD or Alq (Col. 4, Line 14). Jackson further teaches that those skilled in the art would recognize that other light-emitting compounds can be used (Col. 4, Lines 44-47) although Jackson fails to provide any further examples, such as the heterocyclic compounds with a nitrogen atom shared with two adjacent five or six membered fused rings and as described in general formulas II, III, IV, V, VI, and VII, in claims 3-8, respectively. However, Ueda discloses several materials capable of emitting excellent light emission efficiency and high luminance light made of five member rings each having a nitrogen atom commonly shared between the

two rings (see e.g. col. 1 line 55 – col. 4 line 61). With respect to claims 1 and 3, Ueda discloses the structure shown as “formula III” (see e.g. col. 2 line 62 - col. 3 line 17). With respect to claims 1 and 4, Ueda discloses the structure shown as “formula IV” (see e.g. col. 3 lines 18-40). With respect to claims 1 and 5, Ueda discloses the structure shown as “formula V” (see col. 3 lines 41-63). With respect to claims 1 and 6, Ueda discloses the structure shown as “formula VIII” (see col. 4 line 40-61). With respect to claims 1 and 7, Ueda discloses the structure shown as “formula VII” (see col. 4 lines 17-39). With respect to claims 1 and 8, Ueda discloses the structure shown as “formula VI” (see e.g. col. 3 line 64 - col. 4 line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the compounds of Ueda as the light emitting material of the organic semiconductor layer of Jackson since Ueda teaches that these compounds have are known to have excellent light emission efficiency and are capable of high luminance values (Ueda Col. 1, Lines 57-60, for example). It has been held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Further regarding the language, term, or phrase "formed by condensation between five member rings each having a nitrogen atom at their condensation sites or between a five-member ring and a six-member ring each having a nitrogen atom at their condensation sites", the examiner notes that such language is merely directed towards the process of making a heterocyclic compound containing nitrogen. It is well settled that

Art Unit: 2891

"product by process" limitations in claims drawn to structure are directed to the product, per se, no matter how actually made. *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or otherwise. As such, the language "formed by condensation" only requires a structure having five member rings each having a nitrogen atom at a common point shared between the two rings, or a structure having a nitrogen atom at a common point shared between a five member ring and a six member ring which does not distinguish the invention from Jackson in view of Klauk in view of Ueda, who teaches the structure as claimed.

The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Pearson*, 181 USPQ 641 (CCPA); *In re Minks*, 169 USPQ 120 (Bd Appeals); *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). See MPEP §2114. The recitation of "which controls an electric current flowing between the

source and the drain by applying an electric voltage across the gate electrode" does not distinguish the present invention over the prior art of Jackson in view of Klauk in view of Ueda who teaches the structure as claimed.

j. Regarding claims 10-12, Jackson teaches that the source electrode and drain electrode are formed "on" a substrate (see Figs. 1-4, for example). The examiner notes that the use of the term "on" does not limit the claimed structure to have elements in contact with one another without intervening layers. Jackson also teaches that the source electrode and drain electrode can be formed "on" with the insulating layer (Fig. 1) as well as a configuration with the source electrode and drain electrode formed "on" and in contact with the organic semiconductor layer (Fig. 1).

8. Claims 1-2 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson ('572) in view of Klauk (Solid-State Electronics, Vol. 47) in view of Taguchi (JP '977; cited on IDS submitted 28 April 2006).

k. Regarding claims 1-2 and 9, Jackson teaches an organic thin film transistor (Col. 3, Lines 27-51) comprising a gate electrode (Element 14; Col. 4, Lines 24-26, at least), a source electrode (Element 18; Col. 4, Line 38, at least), and a drain electrode (Element 24; Col. 4, Lines 60-61, at least). An insulating layer (Element 16; Col. 4, Line 34, at

least) and an organic semiconductor layer (Elements 20, 22, 32; Col. 4, Lines 44-56, at least) are formed on a substrate (Element 12; Col. 4, Line 23, at least).

Jackson is silent regarding the length of the channel, or (in other words) the distance between the source electrode and the drain electrode. However, Klauk teaches an organic thin film transistor (Fig. 1, for example) with conventional channel lengths of 5-100 μm , for example, and the effects on device characteristics (see Page 299). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the channel length of Jackson to be 100 μm , for example. One would have been motivated to do so since Klauk teaches that channel lengths of this order have a higher carrier mobility and low threshold voltage (Klauk Fig. 3, for example). It has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Jackson teaches some conventional compounds useful as the light emitting material of the organic semiconductor layer, such as TPD or Alq (Col. 4, Line 14). Jackson further teaches that those skilled in the art would recognize that other light-emitting compounds can be used (Col. 4, Lines 44-47) although Jackson fails to provide any further examples, such as the heterocyclic compounds with a nitrogen atom shared with two adjacent five or six membered fused rings and as described in general formula I in claim 2. Taguchi discloses an organic luminous layer of high brightness and excellent durability enabled to illuminate with high efficiency that contains a compound having a condensed heterocyclic skeleton containing nitrogen at the condensation site between five

member rings (see structure "HT-1" on page 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the compound of Taguchi as the light emitting material of the organic semiconductor layer of Jackson since Taguchi teaches that these compounds have are known to have high efficiency light emission. It has been held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Further regarding the language, term, or phrase "formed by condensation between five member rings each having a nitrogen atom at their condensation sites or between a five-member ring and a six-member ring each having a nitrogen atom at their condensation sites", the examiner notes that such language is merely directed towards the process of making a heterocyclic compound containing nitrogen. It is well settled that "product by process" limitations in claims drawn to structure are directed to the product, per se, no matter how actually made. *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or

otherwise. As such, the language "formed by condensation" only requires a structure having five member rings each having a nitrogen atom at a common point shared between the two rings, or a structure having a nitrogen atom at a common point shared between a five member ring and a six member ring which does not distinguish the invention from Jackson in view of Klauk in view of Ueda, who teaches the structure as claimed.

The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Pearson*, 181 USPQ 641 (CCPA); *In re Minks*, 169 USPQ 120 (Bd Appeals); *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). See MPEP §2114. The recitation of "which controls an electric current flowing between the source and the drain by applying an electric voltage across the gate electrode" does not distinguish the present invention over the prior art of Jackson in view of Klauk in view of Ueda who teaches the structure as claimed.

1. Regarding claims 10 and 12, Jackson teaches that the source electrode and drain electrode are formed "on" a substrate (see Figs. 1-4, for example). The examiner notes that the use of the term "on" does not limit the claimed structure to have elements in contact with one another without intervening layers. Jackson also teaches that the source electrode and drain electrode can be formed "on" with the insulating layer (Fig. 1).

Response to Arguments

9. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Babel (J. Am. Chem. Soc., Vol. 125) teaches a high electron mobility n-type semiconductor device of BBL in a field effect transistor.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is (571) 272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew W. Such
Examiner, Art Unit 2891

MWS
6/25/08

/Douglas M Menz/
Primary Examiner, Art Unit 2891
7/7/08